

## Alcimededes

Drug facilitated sexual assault (DFSA) has been defined as sexual activity occurring where consent is invalid or absent due to the effects of drugs and/or alcohol. Although the covert administration of drugs to facilitate sexual assault is thought to be quite uncommon there are concerns that the incidence may be increasing. A disturbing case report of a male who used a commonly available over-the-counter drug to induce an obtunded compliant victim who had no memory of the sexual assault does nothing to alleviate those concerns (*Legal Med* 2007;9:192–5). The man repeatedly used tetrahydrozoline, a constituent of over-the-counter eye drops, to induce a comatose state in an adult female and his four female children for the purposes of sexual assault, posting pictorial evidence of sex with his children on the Internet. Tetrahydrozoline is an imidazoline derivative with a rapid onset of action (15–30 min) that causes a number of clinical effects including drowsiness, coma, respiratory depression, bradycardia, hypotonia, muscle flaccidity and hypothermia.

Alcimededes well remembers a large number of drink-drive convictions having to be quashed in the North of England after it was found that the swabs provided in the blood alcohol kits were impregnated with alcohol, rather than being alcohol-free. A number of studies have since suggested that the concerns about the reliability of the blood alcohol levels in these cases may have been unjustified. One such is a retrospective analysis of data collected from a study of blood ethanol levels after the use of the alcohol-based hand sanitizer (ABHS) (*J Emerg Med* 2007;33:9–10). A total of five male volunteers were enrolled. Eight of the 10 total blood ethanol level measurements were drawn after skin preparation with Kendall WEBCOL Alcohol Preps (APP) containing 70% isopropyl alcohol. All had an initial and post-ABHS application blood alcohol level (BAL) drawn, for a total of 10 BAL measurements. Measurements upon completion of the study were <5 mg/dL in all five study participants and in each of the 10 blood draws regardless of skin preparation technique. This study demonstrates that the use of isopropyl skin prep pads is unlikely to cause significant false-positive blood ethanol levels.

The Thomas A Swift's Electrical Rifle, or TASER, is widely used as a means of non-lethal restraint by delivering repetitive low current, high voltage impulse shocks

through two metal dart electrodes. Normally there is an uneventful prompt recovery following Taser usage, however, there have been case reports of fatalities and other less serious complications following the use of device. An example of the latter involved a 16-year-old boy who was struck on the right forehead by one of two Taser dart electrodes after resisting arrest (*Am J Emerg Med* 2007;25:733.e3–733.e4). He was reportedly unconscious for 5 min after discharge of the weapon and so was taken to a local emergency department where he underwent a CT scan that revealed intracranial penetration of the dart. At surgical exploration, the tip of the dart was found to have penetrated the dura and entered the brain. The dart was removed and the boy made an uneventful recovery following surgery. The authors caution that intracranial dart penetration requires neurosurgical consultation because, had an attempt been made to remove the dart from this patient in the standard fashion employed by police officers or forensic physicians, there would have been the risk of breaking the dart and leaving a foreign body in the cranial vault.

Further evidence of the potential danger of the TASER is provided by a case report where thoracic spine compression fractures are described for the first time. The unfortunate victim was a 38-year-old, previously healthy, male law enforcement officer who volunteered to receive a standard 5-s discharge from a TASER during a conducted energy weapon instructor training class that he was participating in (*Ann Emerg Med* 2007;50:584–6). The discharge was delivered through wires attached by alligator clips to his right shoulder and left hip. During and after the discharge, the officer was supported by two other officers to avoid falling. As expected, the officer experienced pain and diffuse muscular contractions during the 5-s discharge. In addition, he immediately observed what he thought were severe muscle spasms in the thoracic area of his back. This pain continued after the discharge had ended and the officer was taken to the nearby emergency department where X-rays revealed compression fractures at T6 and T8. The man had no factors that predisposed to such injuries. Though rare, it seems that vertebral fractures as a result of severe muscle contractions induced by conducted energy weapons are a possibility that should be considered when indicated by the clinical setting.

The use of conducted electrical weapons (CEWs) such as TASER are particularly controversial in the mentally ill population. Proponents advocate CEW use to avoid other forms of escalated force whereas opponents warn against the use of CEWs because of the potential for abuse. Analysis of a database of CEW use that has been maintained in the United States since 1999 through voluntary reporting by law enforcement agencies revealed 10,608 reports of CEW use over a 72-month period (*Am J Emerg Med* 2007;25:780–5). There were 2452 occasions where the weapons were used on mentally ill subjects; of these, 1111 (45.3%) were assessed to be in situations where lethal force by the law enforcement agency would have been justified or where the subject represented an imminent life threat to himself. Although the authors recommend that further research is done into this area, they conclude that the availability of CEWs may prevent an escalation to the use of lethal methods of restraint or successful suicide in encounters with mentally ill patients.

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The prevalence of cocaine use is rising and it is estimated that cocaine is associated with 20% of drug-related emergency department (ED) visits in the US. Sometimes the relationship between cocaine and the presenting complaint may not be immediately obvious, as demonstrated by a prospective study to evaluate the prevalence of cocaine use in ED patients with elevated diastolic pressure and no overt signs of cocaine intoxication (*Am J Emerg Med* 2007;25:612–5). Of 107 eligible patients with a diastolic blood pressure equal to or greater than 120 mm Hg, 99 had spontaneously voided urine samples tested for benzoylecgonine (a breakdown product of cocaine). Of the 99, 13 (13%) tested positive. Five of these patients had cardiovascular and/or pulmonary complaints. The authors conclude that ED patients with hypertension who have recently used cocaine may be difficult to differentiate from those who have not and suggest that recent cocaine use should be included in the differential diagnosis of patients presenting with hypertension.